CLAIMS

That which is claimed is:

1. An isolated actinomycete which produces manzamine.

2. The actinomycete according to claim 1, wherein the actinomycete is *Micromonospora* sp.

3. The actinomycete of claim 2 where the manzamine produced is manzamine A or 8-hydroxymanzamine A.

4. An isolated actinomycete which produces manzamine and which comprises a 16S rRNA having a nucleotide sequence of SEQ ID NO: 1.

5. An isolated actinomycete which produces manzamine and which comprises a 16S rRNA that hybridizes under high stringency conditions to SEQ ID NO: 1.

6. An isolated actinomycete which produces manzamine and which comprises a 16S rRNA that hybridizes under medium stringency conditions to SEQ ID NO: 1.

7. The isolated actinomycete according to claim 4, wherein the actinomycete is *Micromonospora* sp.

8. The isolated actinomycete according to claim 5, wherein the actinomycete is *Micromonospora* sp.

9. The isolated actinomycete according to claim 5, wherein the actinomycete is *Micromonospora* sp.

10. The isolated actinomycete of claim 4, where the manzamine produced is manzamine A ~~/~~or 8-hydroxymanzamine A.

11. The isolated actinomycete of claim 5, where the manzamine produced is manzamine A and/or 8-hydroxymanzamine A.

12. The isolated actinomycete of claim 6, where the manzamine produced is manzamine A and/or 8-hydroxymanzamine A.

13. The isolated actinomycete according to claim 4, wherein the actinomycete is a *Micromonospora sp.* M42.

14. A method of isolating a manzamine-producing actinomycete comprising the steps of:

a) identifying a bacteria containing a 16S rRNA comprising a nucleotide sequence of SEQ ID NO: 1;
b) screening bacteria for manzamine producing ability; and
c) selecting those bacteria having manzamine producing ability.

15. The method of claim 14, further comprising the step of screening bacteria to determine actinomycete morphology prior to step a).

16. A method of isolating a manzamine-producing actinomycete comprising the steps of:

a) identifying a bacteria containing a 16S rRNA that hybridizes to SEQ ID NO: 1, under high stringency conditions;
b) screening bacteria which hybridize in step a) for manzamine producing ability; and
c) selecting those bacteria having manzamine producing ability.

17. The method of claim 16, further comprising the step of screening bacteria to determine actinomycete morphology prior to step a).

18. An isolated polynucleotide comprising the sequence as set forth in SEQ ID NO:1

19. An isolated polynucleotide as set forth in SEQ ID NO:1.

20. An isolated polynucleotide fragment comprising at least ten contiguous nucleotides of SEQ ID NO: 1.

21. A method for producing a manzamine by fermentation, the method comprising:

a) culturing an actinomycete having manzamine producing ability in a culture medium suitable for the growth of the actinomycetes and production of manzamine; and

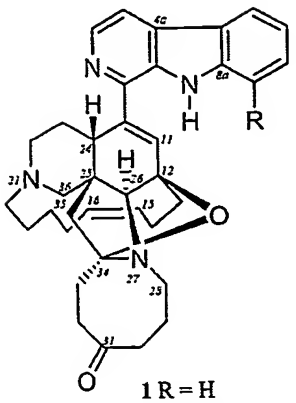
b) separating the manzamine from the culturing medium.

22. The method according to claim 21, wherein the culturing medium is maintained at a salinity in the range of about 15 ppt to about 25 ppt.

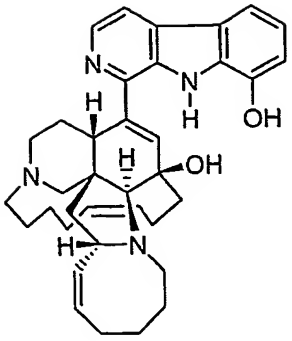
23. The method according to claim 21, wherein the actinomycete is *Micromonospora* sp.

24. The method according to claim 21, wherein the manzamine produced by the actinomycetes precipitates in the culturing medium.

25. A manzamine compound comprising a structure selected from the group consisting of



1 R = H
2 R = OH



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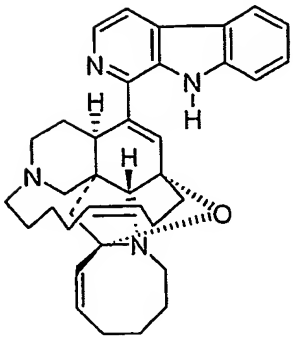
and



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26. An isolated bacteria which produces a manzamine compound.

27. The bacteria according to claim 26 comprising a 16S rRNA comprising a nucleotide sequence that hybridizes with SEQ ID NO: 1 under high stringent conditions.

28. A method for detecting a bacteria having manzamine producing ability, the method comprising the steps of:

(a) mixing at least a fragment of a complement of the polynucleotide sequence of SEQ ID NO: 1, with a biological test sample containing nucleic acids from a bacteria suspected of having manzamine generating ability, to form a resulting mixture;

(b) subjecting the mixture to conditions such that hybridization will occur between the biological test sample and the complement of the polynucleotide sequence of SEQ ID NO: 1; and

(c) detecting hybridization complexes in the mixture subjected to hybridization conditions, wherein the presence of a hybridization complex correlates with the presence of a polynucleotide consisting essentially of SEQ ID NO: 1 in the biological test sample.